

Our Docket No: 42390P9017

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
)	
Doyle, et al.)	Examiner: Chankong, Dohm
)	
Application No: 09/752,369)	Art Unit: 2152
)	
Filed: December 29, 2000)	
)	
For: Enhanced Configuration of)	
InfiniBand Links)	
)	

Mail Stop Appeal
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REVISED APPEAL BRIEF
IN SUPPORT OF APPELLANT'S APPEAL

Sir or Madam:

Appellant hereby submits this Revised Appeal Brief in response to the Notification of Noncompliant Appeal Brief mailed on February 15, 2007. Appellant again respectfully requests consideration of this appeal and the allowance of the above-captioned patent application.

An oral hearing is not requested.

Filed Electronically Via EFS 3/13/2007

/Gayle Bekish/

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(i) **REAL PARTY IN INTEREST**

The invention is assigned to Intel Corporation of 2200 Mission College Boulevard, Santa Clara, California 95052.

(ii) **RELATED APPEALS AND INTERFERENCES**

To the best of Appellant's knowledge, there are no appeals, interferences, or judicial proceedings related to the present appeal that are related to, will directly affect, will be directly affected by, or will have a bearing on the Board's decision.

(iii) **STATUS OF THE CLAIMS**

Claims 1-26 are currently pending in the above-referenced application. In the Final Office Action mailed August, 2005, claims 1-26 were rejected. A Notice of Appeal and Pre-Appeal Brief Request for Review was filed on December 9, 2005, resulting in the Notice of Panel Decision of February 13, 2005 indicating that the application remained under appeal because of the existence of at least one actual issue for appeal.

The Applicant's original Appeal Brief was filed on March 15, 2006. The Examiner's Answer was mailed on June 6, 2006, and the Applicant's Reply Brief was filed on August 7, 2006. On February 15, 2007, a revised Examiner's Answer was mailed, as well as a Notification of Non-Compliant Brief. This Revised Appeal Brief is provided in response to the Notification of Non-Compliant Brief.

Claims 1-6, 8-22, and 24-26 were rejected under 35 U.S.C. §102 (e) as being anticipated by U.S. Patent 6,735,660 of *Osten, et al.* (hereinafter referred to as *Osten*). Claims 7 and 23 are rejected under 35 U.S.C. 103 (a) as being unpatentable over *Osten* in view of U.S. Patent 6,732,249 of *Pickreign, et al.* (hereinafter referred to as "*Pickreign*").

(iv) **STATUS OF AMENDMENTS**

No amendments are currently pending.

(v) **SUMMARY OF THE CLAIMED SUBJECT MATTER**

The present invention generally relates to computer networks, and specifically to the configuration of InfiniBand links. (See Field of the Invention, page 1, lines 6-7).

An embodiment of the invention may be understood by referring to Figures 4 and 5 and the supporting text of the specification. In Figure 4, a embodiment of the invention includes module 400 connected to a chassis 415 via an InfiniBand backplane connector 425. The module is operable to request an expanded connectivity configuration from the chassis 415, the request being communicated using the InfiniBand management link 435. In an embodiment, the module 400 writes the configuration request to a first configuration register 455. The chassis management entity 420 issues a response to the module by writing the response to a second configuration register 460, with the response indicating whether the chassis management entity 420 can support the requested connectivity configuration. If there is a positive response, the module 400 then attempts to establish the requested links. (See Description, page 9, line 14 through page 10, line 10)

Figure 5 then provides a flow chart to illustrate the operation of an InfiniBand module. In this embodiment, the module determines what connectivity configuration is needed 500. If the request is for an expanded configuration 505, the module requests this configuration by writing the configuration request to a register 510. The module detects the response regarding the configuration request 515. If the response is affirmative 520, the module initiates the links contained in the requested configuration 525 and commences operations 530. If the response to the configuration request is negative,

because the configuration request is denied or because the chassis does not respond to the request, the module again formulates a configuration request 500 and proceeds through the process defined. If a request is not for an expanded configuration 505 then the process may proceed according to the InfiniBand Specification 535 proceeds to initiate the configuration 525. (*See* Description, page 10, line 11 through page 11, line 4)

The subject matter of each independent claim involved in this appeal is as follows:

Claim 1 provides for a method that includes requesting an InfiniBand connectivity configuration (*e.g.*, Specification, p. 7, lines 14-15) (Fig. 5, elements 500 and 510). The method further includes receiving a response regarding whether the requested configuration can be provided (Specification, p. 7, lines 15-16) (Fig. 5, element 515), and attempting to establish the requested connectivity configuration if the response to the request is affirmative (Specification, p. 7, lines 16-17) (Fig. 5, element 525).

Claim 8 provides for a method comprising receiving a connectivity configuration request associated with an InfiniBand connector, with the configuration request representing an expanded InfiniBand connector configuration (*e.g.*, Specification, p. 8, lines 2-3) including information indicative of one or more desired links to be established through the InfiniBand connector and assigning one or more physical lanes of the InfiniBand connector to each of the one or more desired links (*See* Figure 2, elements 220, 230, 240 and 250). The method further includes providing a response to the connectivity configuration request indicating whether the requested expanded InfiniBand connector configuration can be provided (*e.g.*, Specification, p. 8, lines 13-15), and configuring the InfiniBand connector in accordance with said connectivity configuration request (*e.g.*, Specification, p. 7, lines 15-17).

Claim 12 provides a method that includes an InfiniBand management link operating to enable the establishment of an InfiniBand connectivity configuration, where the management link: Records a request for a connectivity configuration made by an InfiniBand module (Specification, p. 9, line 20 to p. 10, line 3), allows an InfiniBand chassis to obtain said request for a connectivity configuration (Specification, p. 10, lines 3-4), records a response from said InfiniBand chassis to said request for a connectivity configuration (Specification, p. 10, lines 4-8), and allows said InfiniBand module to obtain said response to said request for a connectivity configuration (Specification, p. 10, lines 8-10).

Claim 16 claims a network apparatus, which includes an InfiniBand connector (Fig. 4, element 425), an InfiniBand module (Fig. 4, element 400) to make a request (Fig. 4, element 455) for an expanded connectivity configuration for the InfiniBand connector, and a chassis management entity (Fig. 4, element 420) coupled to said InfiniBand module, the chassis management entity to receive the request for an expanded connectivity configuration for the InfiniBand connector and to provide a response (Fig. 4, element 460) regarding whether the requested configuration can be provided.

Claim 24 provides a machine readable medium having stored thereon data representing sequences of instructions that, when executed by a processor, cause the processor to perform operations comprising requesting an expanded InfiniBand connectivity configuration (*e.g.* Specification, p. 7, lines 14-15) (Fig. 5, elements 500 and 510), receiving a response regarding whether the requested configuration can be provided (Specification, p. 7, lines 15-16) (Fig. 5, element 515), and establishing the requested configuration (Specification, p. 7, lines 16-17) (Fig. 5, element 525).

(vi) **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-6, 8-22, and 24-26 stand rejected under 35 U.S.C. §102 (c) as being anticipated by *Osten*.

Claims 7 and 23 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over *Osten* in view of *Pickreign*.

(vii) **ARGUMENT**

(A) 35 U.S.C. §102 (e) – *Osten* – The Examiner rejected claims 1-6, 8-22, and 24-26 under 35 U.S.C. §102 (e) as being anticipated by *Osten*. Appellant respectfully submits that such claims are not anticipated by the reference, and that the claims should be allowed.

Claim 1 reads as follows:

1. A method comprising:
requesting an InfiniBand connectivity configuration;
receiving a response regarding whether the requested configuration
can be provided; and
attempting to establish the requested connectivity configuration if
the response to the request is affirmative.

It is the contention of the Applicant that *Osten* does not contain the elements of “requesting an InfiniBand connectivity configuration” and “receiving a response regarding whether the requested configuration can be provided”. Related provisions are contained in independent claims 8, 12, 16, and 24. It is thus submitted that a *prima facie* case of rejection has not been made.

The Examiner disagrees with Applicant’s position. In response to arguments presented, the Examiner has cited to certain provisions of *Osten*. It is respectfully submitted that the cited portions of *Osten* do not contain the elements of the claims and do not refute the arguments presented.

Among the provisions cited is column 8, line 35 through column 9, line 8, which includes four paragraphs of *Osten*. The first of the paragraphs indicates that “whenever a slot is empty or no IOA has been initialized in the slot, the SES processor controls the tri-state logic to set all sideband signal pairs to a high impedance state. Once a

sideband-capable IOA is inserted in a slot, a presence detect signal will both immediately tri-state the sideband signal paths on the IOA through control of tri-state logic block 54 (FIG. 2), and notify the SES processor that an IOA has been inserted in the slot and is ready to be initialized.” (*Osten*, col. 8, lines 35-46) This paragraph indicates that, when a side-band capable IOA (input/output adapter) is inserted into a backplane slot, a presence detect signal will tri-state the sideband signal paths on the IOA and notify the processor that the IOA is inserted in the slot and is ready. This does not provide a request or response regarding a configuration.

The second paragraph indicates that “[u]pon detection of the assertion of a presence signal, routine 70 begins in block 72 by reading the VPD information from the IOA over the 12C bus to determine what the capabilities of the IOA are. ... An innumerable number of sideband capabilities, definitions and formats may be defined by the VPD consistent with the invention.” (*Osten*, col. 8, lines 47-58) In this paragraph, *Osten* describes the process that is followed after an IOA is detected. Specifically, the VPD (vital product data) information is read to determine the capabilities of the IOA. The paragraph also indicates what may be indicated by the VPD, including what link is required and that a number of other signal paths are allocated for sideband communications. Thus, this paragraph shows that the system described in *Osten* operates in a different fashion than the relevant elements of the claims. The process that is described in *Osten* is one in which an IOA is being examined to determine its capabilities. There is no indication that a device makes a request for a connectivity configuration or that a response is made – there is no communication back and forth between the devices.

The third paragraph indicates that “the SES processor checks the relative capabilities and the compatibility between the IOA and the host apparatus, including the slot connector capabilities and/or other capabilities of the host apparatus. Doing so ensures that the computer and slot are fitted with the hardware and software necessary to properly operate the type of IOA installed in the slot.” (*Osten*, col. 8, lines 59-65) This paragraph then follows with a description of the processor checking the relative capabilities between the IOA and the host apparatus. As indicated in *Osten*, this is done to ensure that the computer and the slot have the hardware and software necessary to operate the relevant type of IOA. Again, there is no suggestion of a request/response operation. Instead, *Osten* is describing a process for determining whether the system can handle the IOA.

The fourth paragraph provides that “[i]f the check in block 74 fails, control passes to block 76 to signal an error, typically in any of a number of manners known in the art. Otherwise, if the check passes, block 74 passes control to block 78 to set up any initial configuration for the slot and the corresponding IOA through the 12C bus to prepare for sideband communications. ...” (*Osten*, col. 8, lines 66 through col. 9, line 8) This paragraph then describes the result of the check. If the check passes, the process continues with initial configuration. If the check fails, then the result is “an error, typically in any of a number of manners known in the art.” *Osten* is describing a process for success or failure of the check, which is not relevant to the elements of the claims.

The Examiner has further cited to *Osten* column 7, lines 49-53, the Examiner indicating that such provision provides “an alternative embodiment where the adapter provides an identifier to the host, the host utilizing the identifier to request configuration information from (for example) a database, and applying the received configuration to the

adapter.” However, it is submitted that the cited portion does not actually describe a request and response as provided in the claims. This provision of *Osten* describes some of the information that may be stored in the VPD, indicating that “IOA 26 also includes vital product data (VPD) defined in a VPD block 60, which provides, in addition to conventional VPD information, sideband configuration information that defines the sideband capabilities of the IOA.” The cited portion also describes possible elements of the sideband configuration information, and indicates that in an alternative a make or model identifier for the IOA could be provided as sideband configuration information so that a host system could access a database to obtain relevant configuration information for the particular type of IOA. (*Osten*, col. 7, lines 43-57) The IOA is not described as making any type of request, but rather indicates that capability data stored is stored in a VPD block (such as element 60 shown in Figure 2) of the IOA. The Examiner refers to the database access, indicating that the claims may be anticipated by a request to the database. It is submitted that the suggestion of the use of a database does not describe “requesting an InfiniBand connectivity configuration” and “receiving a response regarding whether the requested configuration can be provided”. All *Osten* describes in this possible embodiment is that the IOA might provide a make or model identifier, and then a database might be used to look up further information.

It is further noted that, even if the Examiner’s argument regarding the database reference were correct, such an argument clearly would not apply to, for example, claims 5, 9, 12, and 16, which identify the sender and recipient of the request. Such claims could not be anticipated by the database reference in *Osten*.

Thus, *Osten* does not teach or suggest a process or apparatus that provides for a request for a configuration and a response to the configuration request. *Osten* describes a

one-way process in which a host reads static configuration information and acts upon the information, *not* a two-way communication in which a request is made and a response is received.

For at least the above reasons, *Osten* does not anticipate the provisions of independent claims 1, 8, 12, 16, or 24. The remaining rejected claims 2-6, 9-11, 13-15, 17-22, 25, and 26, while having other differences, are dependent claims and are allowable as being dependent on the allowable base claim.

(B) 35 U.S.C. 103 (a) – *Osten* in view of *Pickreign* – The Examiner has further rejected claims 7 and 23 under 35 U.S.C. 103 (a) as being unpatentable over *Osten* in view of *Pickreign*.

It is submitted that *Pickreign* does not contain the elements missing from *Osten*, as described above. *Pickreign* regards mapping a host computer address space into a network interface adaptor address space, and is not relevant to the elements of “requesting an InfiniBand connectivity configuration” and “receiving a response regarding whether the requested configuration can be provided”. Thus, alone or together, *Osten* and *Pickreign* do not address the relevant elements of the claims.

While having other differences, claims 7 and 23 are allowable as being dependent on the allowable base claims.

CONCLUSION

Careful review of the Examiner's rejections shows that the Examiner has failed to provide any reference or combination of references that shows the claims. Therefore, Appellant respectfully submits that all appealed claims in this application are patentable and were improperly rejected by the Examiner during prosecution before the United States Patent and Trademark Office. Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the Examiner and direct allowance of the rejected claims.

Fees – This brief is submitted, along with a check for \$500.00 to cover the appeal fee for one other than a small entity as specified in 37 C.F.R. §1.17(c). This brief is filed within one month of the date of mailing of the Notice of Panel Decision from Pre-Appeal Brief Review. Please charge any shortages and credit any overcharges to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: March 13, 2007

/Mark C. Van Ness/

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(viii) CLAIMS APPENDIX

The claims on appeal read as follows:

1. A method comprising:
requesting an InfiniBand connectivity configuration;
receiving a response regarding whether the requested configuration can be
provided; and
attempting to establish the requested connectivity configuration if the response to
the request is affirmative.
2. The method of claim 1, wherein the requested connectivity configuration is not
contained in a specification established for the InfiniBand architecture.
3. The method of claim 1, wherein the requested connectivity configuration is
comprised of a plurality of links.
4. The method of claim 1, wherein the requested connectivity configuration is
provided using a standard InfiniBand backplane connector.
5. The method of claim 1, wherein said request for a connectivity configuration is
made by an InfiniBand module to an InfiniBand chassis management entity.
6. The method of claim 1, wherein said request for a connectivity configuration is
made through an InfiniBand management link.
7. The method of claim 6, wherein said request for a connectivity configuration is
written to a first management link configuration register and said response to said
request is written to a second management link configuration register.

8. A method comprising:
- receiving a connectivity configuration request associated with an InfiniBand connector, the configuration request representing an expanded InfiniBand connector configuration including information indicative of one or more desired links to be established through the InfiniBand connector and assigning one or more physical lanes of the InfiniBand connector to each of the one or more desired links;
- providing a response to the connectivity configuration request indicating whether the requested expanded InfiniBand connector configuration can be provided; and
- configuring the InfiniBand connector in accordance with said connectivity configuration request.
9. The method of claim 8, wherein said connectivity configuration request is made by an InfiniBand module and is received by an InfiniBand chassis management entity.
10. The method of claim 8, wherein said expanded InfiniBand connector configuration is not contained in [[the]] a specification established for the InfiniBand architecture.
11. The method of claim 8, wherein said expanded InfiniBand connector configuration is comprised of a plurality of links.
12. A method comprising:
- an InfiniBand management link operating to enable the establishment of an InfiniBand connectivity configuration, wherein said management link:

records a request for a connectivity configuration made by an InfiniBand module;
allows an InfiniBand chassis to obtain said request for a connectivity configuration;
records a response from said InfiniBand chassis to said request for a connectivity configuration; and
allows said InfiniBand module to obtain said response to said request for a connectivity configuration.

13. The method of claim 12, wherein said request for a connectivity configuration requests an expanded configuration that is not contained in [[the]] a specification established for the InfiniBand architecture.
14. The method of claim 12, wherein said request for a connectivity configuration is written to a first management link configuration register and said response is written to a second management link configuration register.
15. The method of claim 12, wherein the requested connectivity configuration is comprised of a plurality of links.
16. A network apparatus comprising:
an InfiniBand connector;
an InfiniBand module to make a request for an expanded connectivity configuration for the InfiniBand connector; and
a chassis management entity coupled to said InfiniBand module, the chassis management entity to receive the request for an expanded connectivity

configuration for the InfiniBand connector and to provide a response regarding whether the requested configuration can be provided.

17. The network apparatus of claim 16, wherein said requested connectivity configuration is not contained in a specification established for the InfiniBand architecture.
18. The network apparatus of claim 16, wherein the requested connectivity configuration is other than:
 - a single link comprised of a connection to the first pin of a plurality of pins on the InfiniBand connector;
 - a single link comprised of a connection to the first four pins of the plurality of pins on the InfiniBand connector; or
 - a single link comprised of a connection to the first twelve pins of the plurality of pins on the InfiniBand connector.
19. The network apparatus of claim 16, wherein said InfiniBand module is operable to establish the requested connectivity configuration if the response to said connectivity request is affirmative.
20. The network apparatus of claim 16, wherein said requested connectivity configuration is comprised of a plurality of links that are provided simultaneously through said InfiniBand connector.
21. The network apparatus of claim 16, wherein the InfiniBand connector is a standard InfiniBand backplane connector.

22. The network apparatus of claim 16, wherein the said request for a connectivity configuration is made through an InfiniBand management link.
23. The network apparatus of claim 21, wherein said request for a connectivity configuration is written to a first management link configuration register and said response to said request is written to a second management link configuration register.
24. A machine readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform operations comprising:
requesting an expanded InfiniBand connectivity configuration;
receiving a response regarding whether the requested configuration can be provided; and
establishing the requested configuration.
25. The medium of claim 24 wherein the requested connectivity configuration is not contained in a specification established for the InfiniBand architecture.
26. The medium of claim 24 wherein the requested connectivity configuration is comprised of a plurality of links.

(ix) EVIDENCE APPENDIX

None.

(x) RELATED PROCEEDINGS APPENDIX

None.